



4235.0.55.001 - Microdata: Qualifications and Work, 2015

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Summary

Introduction

INTRODUCTION

This product provides a range of information about the release of microdata from 2015 Qualifications and Work (Q&W), including details about the survey methodology and how to use the microdata product; TableBuilder. A data item list and information on the conditions of use and the quality of the microdata are also provided. A TableBuilder is an online tool for creating tables and graphs.

Microdata are the most detailed information available from a survey and are generally the responses to individual questions on the questionnaire or data derived from two or more questions.

The Q&W was conducted from January to December 2015 throughout Australia and is designed to provide statistics about the educational qualifications of the population.

Further information about this product, and other information to assist users in understanding and accessing microdata in general, is available from the Microdata Entry Page. Before applying for access, users should read and familiarise themselves with the information contained in the User Manual: TableBuilder.

APPLYING FOR ACCESS

To apply for access to TableBuilder, register and apply in Registration Centre.

Further information on access steps can be found in How to Apply for Microdata on the ABS website.

FURTHER INFORMATION

Further information about the survey and the microdata can be found in the various pages associated with this product, including:

- A detailed list of data items for the 2015 Q&W TableBuilder, available in the Downloads tab.
- The Quality Declaration in the Explanatory Notes tab.
- Other related products on the Related Information tab.
- Explanatory notes and Glossary relating to this product in the publication: Qualifications and Work, Australia, (cat. no. 4253.0).

SUPPORT

For further support in the use of this product, please contact Microdata Access Strategies on 02 6252 7714 or via microdata.access@abs.gov.au.

DATA AVAILABLE ON REQUEST

Data collected in the survey but not included in TableBuilder may be available from the ABS, on request, as statistics in tabulated form.

Subject to confidentiality and sampling variability constraints, special tabulations can be produced incorporating data items, populations and geographic areas selected to meet individual requirements. These are available, on request, on a fee for service basis. Contact the National Information and Referral Service on 1300 135 070 or client.services@abs.gov.au for further information.

PRIVACY

The ABS Privacy Policy outlines how the ABS handles any personal information that you provide to us.

Survey Methodology

SURVEY METHODOLOGY

General information about the 2015 Qualifications and Work (Q&W), including summary results, are available in the publication Qualifications and Work, Australia, (cat. no. 4253.0).

Detailed information about the survey including scope and coverage, survey design, data collection methodology, weighting, estimation and benchmarking, estimate reliability and a glossary can be accessed from the Explanatory Notes page of the publication. All published summary tables, in Excel spreadsheet format, can be accessed from the Downloads page.

File Structure

FILE STRUCTURE

DATA AVAILABLE BY LEVEL

The Qualifications and Work (Q&W) 2015 microdata is available across two levels.

1. Person Level
2. Qualification Level

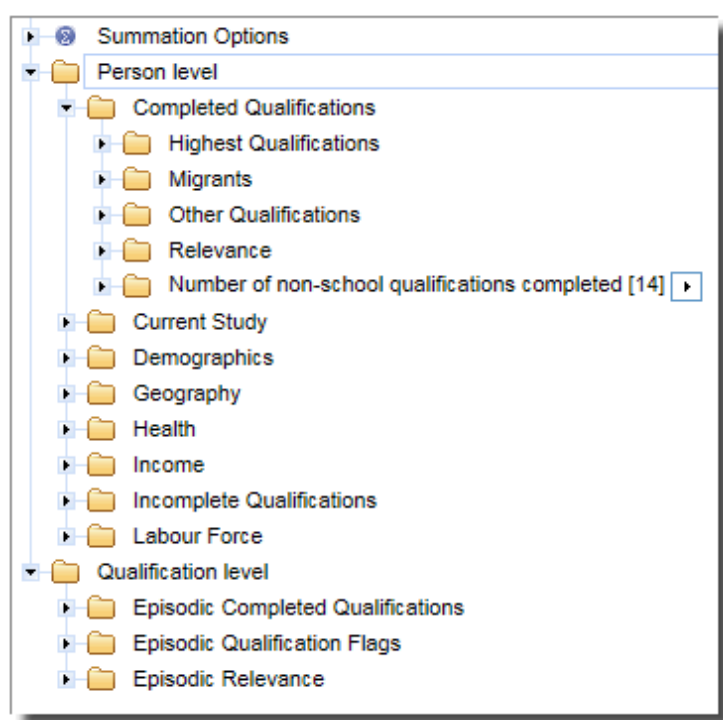
The two levels are hierarchical as the first level relates to people, and people can have one or more qualifications which are shown in the second level. Visually, the file has one row of data containing all the Person Level Data Items for a respondent followed by up to five rows

of data for each of their qualifications.

The Person level contains characteristic data such as age, sex, marital status, employment, and educational status including the number of non-school qualifications completed and the level and field of highest educational attainment. This level also has some information about the persons household, for example, the number of children present aged less than 15 and the overall household income. In addition, the Person level includes broad locational data items such state or territory of usual residence.

The Qualification Level contains details about each episode or completed qualification that each respondent has reported. The types of details available about each qualification include the level and field of the qualification, the year each qualification was started and completed, whether the qualification was completed in Australia and if employed, the relevance of each qualification to the person's current job.

The following image depicts the two levels including the sub-categories under which the individual data items have been grouped. A complete data item list can be accessed from the Downloads page.



Using TableBuilder

USING TABLEBUILDER

For general information relating to the TableBuilder or instructions on how to use features of the TableBuilder product, please refer to the User Manual: TableBuilder (cat. no. 1406.0.55.005).

More specific information applicable to the Qualifications and Work Survey TableBuilder, which should enable users to understand, interpret and tabulate the data, is outlined below.

CONFIDENTIALITY FEATURES IN TABLEBUILDER

In accordance with the Census and Statistics Act 1905, all the data in TableBuilder are subjected to a confidentiality process before release. This confidentiality process is undertaken to avoid releasing information that may allow the identification of particular individuals, families, households, dwellings or businesses.

Processes used in TableBuilder to confidentialise records include the following:

- perturbation of data
- table suppression

Perturbation Effects

To minimise the risk of identifying individuals in aggregate statistics, a technique is used to randomly adjust cell values. This technique is called perturbation. Perturbation involves small random adjustments of the statistics and is considered the most satisfactory technique for avoiding the release of identifiable statistics while maximising the range of information that can be released. These adjustments have a negligible impact on the underlying pattern of the statistics.

The introduction of these random adjustments result in tables not adding up. While some datasets apply a technique call additivity to give internally consistent results, additivity has not been implemented on this TableBuilder. As a result, randomly adjusted individual cells will be consistent across tables, but the totals in any table will not be the sum of the individual cell values. The size of the difference between summed cells and the relevant total will generally be very small.

Please be aware that the effects of perturbing the data may result in components being larger than their totals. This includes determining proportions.

Table suppression

Some tables generated within TableBuilder may contain a substantial proportion of very low counts within cells (excluding cells that have counts of zero). When this occurs, all values within the table are suppressed in order to preserve confidentiality. The following error message below is displayed (in red) at the bottom of the table when table suppression has occurred.

ERROR: The table has been suppressed as it is too sparse

ERROR: table cell values have been suppressed

COUNTING UNITS AND WEIGHTS

Weighting is the process of adjusting results from a sample survey to infer results for the total population. To do this, a 'weight' is allocated to each record. The weight is the value that indicates how many population units are represented by each sample unit.

To produce estimates for the in-scope population you must use weight fields in your tables. In TableBuilder they can be found under the Summation Options category in the left hand pane under the applicable level. If you do not select a weight field, TableBuilder will apply 'Person weight' by default. This will give you estimates of the number of persons. To produce estimates of the number of qualifications you would have to add 'Qualification level weights' from the Qualification level to your table.

If you are estimating the number of persons with certain characteristics (e.g. 'Number of non-school qualifications completed') the weight listed under the category heading 'Person level weights' must be used. To estimate the number of qualifications (e.g. the number of non-school qualifications completed in 2014 or later) the weight listed under 'Qualification level weights' must be used.

Qualification level data items are weighted according to the characteristics of the person who undertook the qualification, and therefore the weights for each qualification are the same as the weight for the person. For example, if a person in the sample has a weight of 600 and that person has completed three non-school qualifications then the person represents 600 people in the total population and 1,800 qualifications.

SELECTING DATA ITEMS FOR CROSS-TABULATION

The Person Level contains a range of data items detailing the characteristics of the respondent including some education variables. The Qualification Level contains data items about each of the qualifications that a respondent has obtained. The file is hierarchical with each respondent record potentially having multiple qualification records.

Cross-tabulating Data items on the same level

Cross-tabulating data from the Person Level with other data items from the same level will produce data about people. For example, cross-tabulating the geographic variable 'State or territory of usual residence' by the 'Level of most recent non-school qualification' produces a table showing the number of people in each region by the most recent qualification they have obtained.

Cross-tabulating data from the Qualification Level with other data items from the same level will produce data about qualifications when using the Qualification Weight. For example, cross-tabulating 'Level of non-school qualification' by 'Whether completed qualification' in Australia produces a table showing the number of qualifications completed in Australia. If a respondent has several qualifications, each of those qualifications is included in the table. If the same cross-tabulation of 'Level of non-school qualification' by 'Whether completed qualification in Australia' is generated but using the Person weight instead of the Qualification weight, produces a table showing the number of people who completed a non-school qualification in Australia.

When using the Person weight, a respondent with several qualifications may have some qualifications excluded from the table. This occurs because the same combinations of responses can only be counted once in a table when the Person weight is applied. To illustrate, a person has the following five qualifications (each qualification appears as a separate record on the file):

	Qualification	Whether completed qualification in Australia
1	Bachelor degree	Completed in Australia
2	Certificate III	Completed in Australia
3	Bachelor degree	Completed in Australia
4	Post graduate degree	Did not complete in Australia
5	Bachelor degree	Did not complete in Australia

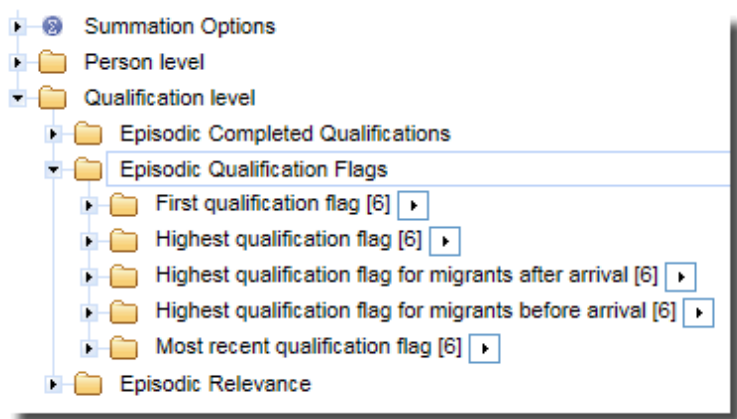
In this example, only Qualifications 1, 2, 4 and 5 will be counted in the tabulation. Qualification 3 will be excluded because the qualification and whether it has been completed in Australia is the same as Qualification 1. All the other combinations of qualifications and

'Whether completed qualification in Australia' are unique.

The need for data where the same combinations of responses are only counted once is likely to be limited so as a general rule, Qualification weight should be selected from the 'Summation Options' for cross-tabulations where all variables are from the Qualification Level.

Using Qualification Flags

To assist with analysis, several variables have been created to help isolate specific qualifications. The following shows the available Qualification Flags:



By using a Qualification Flag, only one qualification for each respondent is included in a table. Selecting either the Person weight or the Qualification weight when using a Qualification Flag will produce essentially the same result, any difference being the result of perturbation acting slightly differently when using the different weights.

Cross-tabulating Person Level X Qualification Level data items

Cross-tabulating data items from the Person Level with data items from the Qualification Level can produce data about people or qualifications depending on the weight being used. Caution should be used when Cross-tabulating a Qualification Level data item while using a Person weight as a person with multiple qualifications may have the same qualifications counted only once in a table (for more detail see above: Cross-tabulating Qualification Level X Qualification Level data items).

Using a Qualification Flag may be worthwhile when cross-tabulating Person Level with Qualification Level data items as only one selected qualification will be included in the tabulation.

Cross-tabulating qualification level data items by person level data items using the person weight – When using a qualification flag

When using a Qualification Flag (e.g. 'Most recent qualification') in a table that cross-tabulates a qualification level data item by a person level data item, either the Person or the Qualification weight can be used and the same output will be generated, with any difference being due to perturbation (see Perturbation Effects above). Restricting the table to a single qualification for each person in effect turns this into a person level data item, as TableBuilder only needs to read one row of data from the qualification level for each person.

Cross-tabulating qualification level data items by person level data items using the person weight – When NOT using a qualification flag

When a Qualification Flag is not used, TableBuilder will read each row of data from the qualification level for each person. In this case, TableBuilder effectively calculates the tabulation as a 'multi-response' table (i.e. the same person can be counted more than once), but it counts the same categories of information about different qualifications only once. It treats them as 'one or more occurrences' of that category. For example if a respondent completed three qualifications, and the respondent is currently working in the field as one of these qualifications but not the other two then the person would be counted in each column of the data item 'Whether currently working in job in the same field as main field of study'.

Therefore, in these particular types of tabulations, components of the table will not add to the total number of persons (as persons can be counted more than once), but the total will be the correct count of persons as TableBuilder calculates the total in such a way that each person is only counted once. An example table is shown below for Whether currently working in job as same field as main field of study, which shows results for all qualifications for a person so they can appear in both columns:

Persons		Person (000's)	
age15-64		15 to less th	
Whether currently working in job in the same field as main field of study - Qual level		Currently working in the same field as main field of study of qualification	Not cu
Labour force status		Employed	
Level of non-school qualification (ASCED) - Qual level		↑↓	
Other		279.0	
Postgraduate Degree		638.1	
Graduate Diploma and Graduate Certificate		520.1	
Bachelor Degree		2,047.2	
Advanced Diploma and Diploma		1,000.8	
Certificate III and IV		2,066.4	
Certificate I and II		253.9	
Total		5,528.9	

The table below shows the same data item but for the highest qualification only so people only appear once, only in either column and consequently columns add to totals (taking perturbation into account, see Perturbation Effects above).

Persons	Person (000's)	
age15-64	15 to less th	
Whether currently working in job in the same field as main field of study - Qual level	Currently working in the same field as main field of study of qualification	Not currentl fie
Highest qualification flag	Highest qualification	
Labour force status	Employed	
Level of non-school qualification (ASCED) - Qual level	↑↓	
Other	120.1	
Postgraduate Degree	625.9	
Graduate Diploma and Graduate Certificate	397.8	
Bachelor Degree	1,379.6	
Advanced Diploma and Diploma	745.7	
Certificate III and IV	1,570.0	
Certificate I and II	124.1	
Total	4,966.2	

In summary, qualification level data items can be cross-tabulated with person level data items with or without Qualification Flags. Qualification Flags should be included in tables when a user wants information only about one particular qualification (e.g. the highest qualification or the most recent qualification), but should not be used in tables looking at all qualifications.

ADJUSTMENT OF CELL VALUES

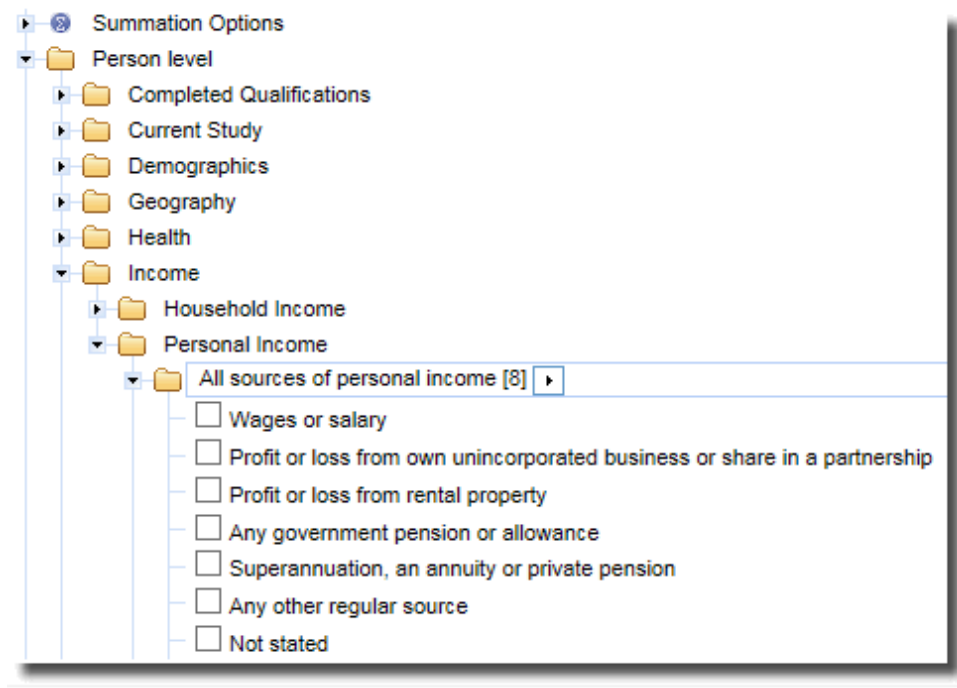
The TableBuilder dataset has random adjustment of cell values applied to avoid the release of identifiable data. All cells in a table are adjusted to prevent any identifiable data being exposed. For this dataset 'additivity' has not been applied, that is, when the interior cells are randomly adjusted they have not been set to add up to the totals. As a result, randomly adjusted individual cells will be consistent across tables, but the totals in any table will not be the sum of the individual cell values.

ZERO VALUE CELLS

Tables generated from sample surveys will sometimes contain cells with zero values because no respondents that satisfied the parameters of the cell were in the survey. This is despite there being people in the population with those characteristics. That is, the cell may have had a value above zero if all persons in scope of the survey had been enumerated. This is an example of sampling variability which occurs with all sample surveys. Relative Standard Errors cannot be generated for zero cells.

MULTI-RESPONSE DATA ITEMS

A number of the survey's data items allow respondents to report more than one response. These are referred to as 'multi-response data items'. An example of such a data item is pictured below. For this data item respondents can report all of their sources of personal income.



When a multi-response data item is tabulated, a person is counted against each response they have provided (e.g. a person who responds 'employee income' and 'unincorporated income' and 'government pensions and allowances' will be counted once in each of these three categories).

As a result, each person in the appropriate population is counted at least once, and some persons are counted multiple times. Therefore, the total for a multi-response data item will be less than or equal to the sum of its components.

NOT APPLICABLE CATEGORIES

Most data items include a 'Not applicable' category. The 'Not applicable' category comprises those respondents who were not asked a particular question(s) and hence are not applicable to the population to which the data item refers. The classification value of the 'Not applicable' category, where relevant, is shown in the data item list (see the Data Item List in the Downloads tab).

TABLE POPULATIONS

The population relevant to each data item is shown in the data item list and should be considered when extracting and analysing the microdata. The actual population count for each data item is equal to the total cumulative frequency minus the 'Not applicable' category.

Conditions of use

CONDITIONS OF USE

USER RESPONSIBILITIES

The *Census and Statistics Act 1905* includes a legislative guarantee to respondents that their

confidentiality will be protected. This is fundamental to the trust the Australian public has in the ABS, and that trust is in turn fundamental to the excellent quality of ABS information. Without that trust, survey respondents may be less forthcoming or truthful in answering our questionnaires. For more information, see 'Avoiding inadvertent disclosure' and 'Microdata' on our web page [How the ABS keeps your information confidential](#).

In accordance with the *Census and Statistics Act 1905*, data in TableBuilder are subjected to a confidentiality process before release. The release of microdata must satisfy the ABS legislative obligation to release information in a manner that is not likely to enable the identification of a particular person or organisation.

This confidentiality process is applied to avoid releasing information that may lead to the identification of individuals, families, households, dwellings or businesses.

Prior to being granted access to TableBuilder users must agree to the following ABS Terms and Conditions of TableBuilder Access:

- understand that the ABS has taken great care to ensure that the information on the survey output record file is correct and as accurate as possible and understand that ABS does not guarantee, or accept any legal liability whatsoever arising from, or connected to, the use of any material contained within, or derived from TableBuilder
- understand that all data extracted from the Survey Output Record File through TableBuilder will be confidentialised prior to being supplied to me and that as a result, no reliance should be placed on small cells as they are impacted by random adjustment, respondent and processing errors
- inform the ABS, through your Contact Officer, upon leaving your organisation that your access is disabled
- not to provide my TableBuilder user ID and password access to any other person or organisation.

CONDITIONS OF SALE

All ABS products and services are provided subject to the ABS Conditions of Sale. Any queries relating to these Conditions of Sale should be referred to intermediary.management@abs.gov.au.

PRICE

Microdata access is priced according to the ABS Pricing Policy and Commonwealth Cost Recovery Guidelines. For details refer to ABS Pricing Policy on the ABS website. For microdata prices refer to the [Microdata prices web page](#).

HOW TO APPLY FOR ACCESS

To use this data in TableBuilder, read the information on the Registration Centre web pages. To apply for access to TableBuilder products, register or log in to the Registration Centre.

AUSTRALIAN UNIVERSITIES

The ABS/Universities Australia Agreement provides participating universities with access to a range of ABS products and services. This includes access to microdata. For further information, university clients should refer to the ABS/Universities Australia Agreement web page.

FURTHER INFORMATION

The Microdata Entry page on the ABS website contains links to microdata related information to assist users to understanding and access microdata. For further information users should email microdata.access@abs.gov.au or telephone (02) 6252 7714.

About this Release

The following microdata products are available from the Qualification and Work, 2015 - TableBuilder

To apply for access to TableBuilder, register and apply in the Registration Centre.

This product provides data on the educational history of people and the relevance of each non-school qualification to their working lives. Data includes the level and field of each qualification, year of completion and whether the qualification was attained in Australia. Further information was collected on incomplete qualifications, cultural background and citizenship status. A detailed list of data items is available on the Downloads tab.

The microdata enables users to tabulate, manipulate and analyse data. Steps to confidentialise the dataset are taken to ensure the integrity of data and maintain confidentiality of respondents. This includes removing any information that might uniquely identify an individual, reducing the level of detail for some items and collapsing some categories.

Explanatory Notes

Abbreviations

ABBREVIATIONS

ABS	Australian Bureau of Statistics
LFS	Labour Force Survey
MPHS	Multipurpose Household Survey
Q&W	Qualifications and Work
RSE	relative standard error

Quality Declaration

QUALITY DECLARATION - SUMMARY

INSTITUTIONAL ENVIRONMENT

The Qualifications and Work (Q&W) topic of the Multipurpose Household Survey (MPHS) was collected from January to December 2015, throughout Australia as part of the Australian Bureau of Statistics' (ABS) household survey program. For information on the institutional environment of the ABS, including its legislative obligations, financing and governance arrangements, and mechanisms for scrutiny of ABS operations, please see ABS Institutional Environment.

TableBuilder files are released in accordance with the conditions specified in the Statistics Determination section of the **Census and Statistics Act 1905**. This ensures that confidentiality is maintained whilst enabling micro level data to be released. More information on the confidentiality practices associated with TableBuilder can be found on the Confidentiality page of the User Manual: TableBuilder.

RELEVANCE

The main purpose of this collection was to obtain detailed information about the educational history of Australians and the relevance of each qualification to their working lives. Information on the number of non-school qualifications, including the level and field of each qualification and year of completion, was collected, together with the relevance of each qualification to the person's current job. The collection also includes information on any non-school qualifications an individual may have started but not completed (incomplete qualifications). Another focus of the publication is the background characteristics of migrants, with data collected on Australian citizenship, language spoken at home, English proficiency, year of arrival, and level and field of highest non-school qualification attained before and after arrival in Australia.

TIMELINESS

Qualifications and Work was collected for the first time in 2010-11 and released on 21 February 2012 under the title Learning and Work, Australia - 2010-11. Microdata in the form of a TableBuilder for this collection (Microdata: Learning and Work, Australia, 2010-11) was released on 28 May 2013. The Q&W topic is scheduled to be repeated on the MPHS in 2018-19.

ACCURACY

The MPHS is collected as a supplement to the Labour Force Survey (LFS). The LFS, and consequently the MPHS, is primarily designed to provide estimates for the whole of Australia and, secondly, for each state and territory. The number of completed interviews for the 2015 Q&W topic on the MPHS (after taking into account scope and coverage exclusions) was 27,846. The sample size was achieved by obtaining a response rate of 74%.

Two types of error are possible in an estimate based on a sample survey: non-sampling error and sampling error.

Non-sampling error arises from inaccuracies in collecting, recording and processing the data. Every effort is made to minimise reporting error by the careful design of questionnaires, intensive training and supervision of interviewers, and efficient data processing procedures.

Sampling error occurs because a sample, rather than the entire population is surveyed. One measure of the likely difference resulting from not including all dwellings in the survey is given by the standard error. There are about two chances in three that a sample estimate will differ by less than one standard error from the figure that would have been obtained if all dwellings had been included in the survey and about nineteen chances in twenty that the difference will be less than two standard errors. Relative Standard Errors (RSEs) of the estimates for this survey are included with this release.

Steps to confidentialise microdata are taken in such a way as to maximise the usefulness of the content while maintaining the confidentiality of respondents selected in the survey. As a result it may not be possible to exactly reconcile all the statistics produced from the microdata with other published statistics. Further information about the steps taken to confidentialise the microdata is available through the following link [TableBuilder confidentiality](#)

COHERENCE

While the ABS seeks to maximise consistency and comparability over time by minimising changes to its surveys, sound survey practice require ongoing development and maintenance to maintain the integrity of the data and the efficiency of collection. Excluding the addition of questions relating to incomplete non-school qualifications, the 2015 questions are largely unchanged when compared to those asked in 2010-11. The incomplete qualification questions were previously asked in the Survey of Education and Training, Australia 2009.

In 2010-11 the data was collected from July to June whereas in 2015 the enumeration period ran from January to December. Both surveys included a 12 month continuous collection period.

The sample size for this survey was doubled in 2015 to 27,846 households from 13,366 households in 2010-11. The increase in sample size allows for more accurate and detailed analysis.

For further changes between iterations of the Q&W, please refer to the Explanatory Notes. For a full list of changes made to the LFS, see Chapter 20 of Labour Statistics: Concepts, Sources and Methods, 2013 (cat. no. 6102.0.55.001) and Information Paper: Forthcoming Changes to Labour Force Statistics, Aug 2015 (cat no. 6292.0).

After each Census, population estimates are normally revised back five years to the previous Census year. As announced in the June 2012 issue of Australian Demographic Statistics (cat. no. 3101.0), intercensal error between the 2006 and 2011 Censuses was larger than normal due to improved methodologies used in the 2011 Census Post Enumeration Survey. The intercensal error analysis indicated that previous population estimates for the base Census years were over-counted. An indicative estimate of the size of the over-count is that there should have been 240,000 fewer people at June 2006. As a result, population benchmarks have been revised for the last 20 years rather than the usual five. Consequently, estimates of particular populations derived for Q&W, Australia 2015 may be lower than those published for Learning and Work, Australia - 2010-11. Therefore, comparisons with estimates should not be made, however comparisons of rates and proportions are appropriate.

INTERPRETABILITY

The information within this release should be referred to when using the microdata. It contains information including Introduction, Survey Methodology, File Structure, Using the

ACCESSIBILITY

For more detailed information on the products and services available for this survey refer to the Introduction page.

Microdata products are available to approved users. Users wishing to access the microdata should read the How to Apply for Microdata web page, before applying for access through MiCRO. Users should also familiarise themselves with information available via the Microdata web pages.

A full list of available microdata can be viewed via the List of expected and available Microdata.

Any questions regarding access to microdata can be forwarded to microdata.access@abs.gov.au or phone (02) 6252 7714. The ABS Privacy Policy outlines how the ABS will handle any personal information that you provide to us.

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